

Attorney Docket No.: 0190135  
Application Serial No.: 09/557,454

**List of Claims:**

**Claim 1 (Currently Amended):** A complementary metal oxide semiconductor (CMOS) device comprising:

a silicon substrate;

a junction field-effect transistor (JFET) formed on a surface of the silicon substrate, the JFET including a photo-absorbing layer formed on the surface of the silicon substrate; and

an overglass layer formed over the JFET adapted to admit photons to the photo-absorbing layer of the JFET; and

a readout switch transistor formed to be coupled to a drain terminal of the JFET;

wherein the JFET detects incident photons admitted through the overglass layer and produces an amplified electrical signal corresponding to the photons detected, and wherein a source terminal of the readout switch transistor is connected to a bus and a resistor, forming a source follower circuit.

**Claim 2 (Previously Presented):** The CMOS device as in claim 1, wherein the JFET provides a relatively low corner frequency.

**Claim 3 (Previously Presented):** The CMOS device as in claim 1, wherein an input referred noise of the JFET is relatively low.

**Claim 4 (Currently Amended):** A complementary metal oxide semiconductor (CMOS) active pixel sensor (APS) pixel supported on a substrate, the CMOS APS pixel comprising:

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a junction field-effect transistor (JFET) adapted to detect photons and produce an amplified electrical signal corresponding to the photons detected; and  
a readout switch transistor coupled to a drain terminal of the JFET;  
wherein a source terminal of the readout switch transistor is connected to a bus and a resistor, forming a source follower circuit.

**Claim 5 (Cancelled)**

**Claim 6 (Currently Amended):** The A complementary metal oxide semiconductor (CMOS) active pixel sensor (APS) pixel supported on a substrate, the CMOS APS pixel as in claim 4, further comprising:

a junction field-effect transistor (JFET) adapted to detect photons and produce an amplified electrical signal corresponding to the photons detected;  
a readout switch transistor coupled to a drain terminal of the JFET;  
a first resistor connected between a gate terminal of the JFET and a drain terminal of the readout switch transistor; and  
a second resistor connected between a source terminal of the JFET and the drain terminal of the readout switch transistor, wherein the first and second resistors provide positive feedback and laser trimmability, and  
wherein a source terminal of the readout switch transistor is connected to a bus and a current source, forming a source follower.

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**Claim 7 (Previously Presented):** The CMOS APS pixel as in claim 4, wherein the JFET is contained in a differential amplifier circuit.

**Claim 8 (Currently Amended):** A digital camera comprising:  
a complementary metal oxide semiconductor (CMOS) active pixel sensor (APS) imager providing image data, the imager comprising:  
an array of CMOS APS pixels comprising a plurality of junction field-effect transistors (JFETs) adapted for photodetection and electrical signal amplification; and  
a readout switch transistor coupled to a drain terminal of the JFET;  
wherein a source terminal of the readout switch transistor is connected to a bus and a resistor, forming a source follower circuit.

**Claim 9 (Previously Presented):** The digital camera as in claim 8, the array of CMOS APS pixels comprising:  
a silicon substrate;  
a JFET formed on the surface of the silicon substrate comprising:  
a photo absorbing layer formed on the surface of the silicon substrate;  
an overglass layer formed over the JFET adapted to admit photons to the photo-absorbing layer of the JFET  
wherein the JFET detects incident photons admitted through the overglass layer and produces an amplified electrical signal corresponding to the photons detected.

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**Claims 10-11 (Cancelled)**

**Claim 12 (Currently Amended):** The digital camera as in claim ~~40~~ 8, wherein each JFET of the plurality of JFETs is contained in a differential amplifier circuit.

**Claims 13-19 (Cancelled)**